IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/707,981	Confirmation No.	:	1980
Applicants	:	Theodore J. Krellner et al.			
Filed	:	1/29/04			
TC/A.U.	:	1795			
Examiner	:	Jeffrey Thomas Barton			
Docket No.	:	133073			
Title:		Apparatus For Infrared Radiation Detection			

SUBSTITUTE APPEAL BRIEF

Sir:

This Substitute Appeal Brief is submitted in response to the Final Office Action mailed March 27, 2008 and the Notification of Non-compliant Appeal Brief mailed October 10, 2008.

1. THE REAL PARTY IN INTEREST

The real party in interest in this appeal is General Electric Company. Ownership by General Electric Company is established by an assignment document recorded for this application on January 29, 2004, on Reel 014296 and Frame 0270.

2. RELATED APPEALS AND INTERFERENCES

Applicant is not aware of any related appeals or interferences.

3. STATUS OF CLAIMS

Claims 1, 5 and 9-11 are currently pending and are the claims on appeal.

Claims 2-4, 6-8, and 12-20 have been cancelled.

Claim 1 was rejected under 35 U.S.C. §102(e) as being anticipated by Lambert et al. (U.S. Patent No. 6,828,560).

Claims 9 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lambert et al. (U.S. Patent No. 6,828,560).

Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lambert et al. (U.S. Patent No. 6,828,560) in view of Watanabe et al. (U.S. Patent No. 5,056,929).

Claims 1, 5, and 9-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Endo et al. (U.S. Patent No. 5,693,942) in view of Watanabe et al. (U.S. Patent No. 5,056,929).

4. STATUS OF AMENDMENTS

Applicant submits that no amendments were filed subsequent to the Final Office Action.

5. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 is directed to a thermal detection device having a hot and a cold region. See Figure 2 having IR sensor 100 with a hot region 240 and a cold region 250 and page 4, paragraph 0015, lines 1-5. The device includes a first thermocouple disposed across the hot and cold regions, the first thermocouple having a first terminal and a defined polarity. See Figure 2 having the thermocouple 220 disposed across the hot region 240 and the cold region 250 with the terminal 226, and page 4, paragraph 0016, lines 13-15. The device further includes a second thermocouple disposed across the hot and cold regions, the second thermocouple having a second terminal and a polarity opposite to the polarity of the first thermocouple. See Figure 2 having the thermocouple 230 disposed across the hot region 240 and the cold region 250 with the terminal 236, and page 4, paragraph 0016, lines 13-20. The device further includes a thermal absorber disposed at the hot region and in thermal communication with the first and second thermocouples. See Figure 2 having the black body 280 in thermal communication with thermocouples 220, 230, and page 4, paragraph 0016, lines 27-29. The device further includes a diaphragm member supporting the first thermocouple and the second thermocouple thereon. See Figure 2 having a diaphragm member with diaphragm films 272, 274, 276 supporting thermocouples 220, 230, and page 4, paragraph 0016, lines 24-25. The device further includes a support rim supporting the diaphragm member thereon, the support rim having a first cavity, the first cavity having a first predetermined maximum width. See Figure 2 having the support rim 215 with a cavity therein having a predetermined maximum width, and page 4, paragraph 15, lines 10-12. The device further includes a metal base header supporting the support rim. See Figure 2 having metal base header 300 supporting the support rim 215, and page 5, paragraph 0017, lines 11-13. The metal base header has a second cavity therein communicating with the first cavity, the second cavity having a second predetermined maximum width at least as large as the first predetermined maximum width. See Figure 2 having the metal base header 300 with the cavity 310 having a predetermined maximum width at least as large as the first predetermined maximum width of the first cavity in the

support rim 320, and page 5, paragraph 0017, lines 4-15. The first and second thermocouples generate a voltage across the first and second terminals that is indicative of an amount of thermal radiation absorbed at the thermal absorber. See Figure 2 having thermocouples 220, 230, and page 4, paragraph 0016, lines 29-30 and page 5, paragraph 0016, lines 1-3.

Dependent claim 5 recites the device of claim 1 wherein the thermal absorber is a black body. See Figure 2 having the black body 280, and page 4, paragraph 0016, lines 26-27.

Dependent claim 9 recites the device of claim 1 wherein a depth of the second cavity is equal to or greater than about 0.1 millimeter and equal to or less than about 10 millimeter. See Figure 2 having the cavity 310 with a depth "d", and page 5, paragraph 0018, lines 21-23.

Dependent claim 10 recites the device of claim 9, wherein the depth of the second cavity is about 1 millimeter. See Figure 2 having the cavity 310 with a depth "d", and page 5, paragraph 0018, line 23.

Dependent claim 11 recites that the device of claim 1 further includes a cap disposed to house the first and second thermocouples between the cap and the metal base header, the cap and metal base header defining an internal volume. See Figure 1 having metal cap 400 defining an internal volume, and page 6, paragraph 0022, lines 22-24. The cap has a window proximate the hot region for transmitting thermal radiation therethrough. See Figure 1 having the cap 400 with the window 420, and page 4, paragraph 0015, lines 7-9.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claim 1 is anticipated under 35 U.S.C. §102(e) by Lambert et al. (U.S. Patent No. 6,828,560).

Whether claims 9 and 10 are unpatentable under 35 U.S.C. §103(a) over Lambert et al. (U.S. Patent No. 6,828,560).

Whether claim 5 is unpatentable under 35 U.S.C. §103(a) over Lambert et al. (U.S. Patent No. 6,828,560) in view of Watanabe et al. (U.S. Patent No. 5,056,929).

Whether claims 1, 5, and 9-11 are unpatentable under 35 U.S.C. §103(a) over Endo et al. (U.S. Patent No. 5,693,942) in view of Watanabe et al. (U.S. Patent No. 5,056,929).

7. ARGUMENT

A. THE EXAMINER'S REJECTION OF CLAIM 1 UNDER 35 U.S.C. §102(e) IS IMPROPER

The Examiner's rejection of independent claim 1 under 35 U.S.C. 102(e) based on Lambert et al. is improper because the reference does not teach each and every limitation of claim 1.

Referring to claim 1, the claim is directed to a thermal detection device and recites in part: "a support rim supporting the diaphragm member thereon, the support rim having a first cavity, the first cavity having a first predetermined maximum width; and
a metal base header supporting the support rim, the metal base header having a second cavity therein communicating with the first cavity, the second cavity having a second predetermined maximum width at least as large as the first predetermined maximum width, wherein the first and second thermocouples generate a voltage across the first and second terminals that is indicative of an amount of thermal radiation absorbed at the thermal absorber."

Referring to Lambert et al., the reference is directed to an infrared sensor 10. See Lambert et al., column 3, lines 32-36. The sensor 10 includes a body 20 having a cavity therein disposed on a circuit board 52 having a cavity therein. See Lambert et al., Figure 5. However, Lambert et al. does not provide any teaching of: "a metal base header supporting the support rim", as recited in claim 1. In contrast, Lambert et al. discloses a circuit board 52 that is clearly not a metal base header.

Further, Lambert et al. does not provide any teaching of: "the metal base header having a second cavity therein communicating with the first cavity, the second cavity having a second predetermined maximum width at least as large as the first predetermined maximum width", as recited in claim 1. In contrast, referring to Figure 5 of Lambert et al., a maximum width of the cavity in the circuit board 52 is clearly less than a maximum width

of the cavity in the body 20.

Accordingly, because Lambert et al. does not teach each and every limitation of independent claim 1, applicant submits that the rejection of claim 1 based on Lambert et al. under 35 U.S.C. §102(e) is improper.

B. THE EXAMINER'S REJECTION OF CLAIMS 9 AND 10 UNDER 35 U.S.C. §103(a) IS IMPROPER

The Examiner's rejection of claims 9 and 10 under 35 U.S.C. 103(a) is improper because Lambert et al. does not teach each and every limitation of claims 9 and 10. Claim 9 stands or falls by itself. Claim 10 stands or falls by itself.

Claims 9 and 10 depend directly and indirectly, respectively, from claim 1 and therefore incorporate all of the limitations of claim 1.

As discussed above, Lambert et al. does not provide any teaching of: "a metal base header supporting the support rim, the metal base header having a second cavity therein communicating with the first cavity, the second cavity having a second predetermined maximum width at least as large as the first predetermined maximum width", as recited in claim 1, and claims 9 and 10.

Further, Lambert et al. does provide any teaching of: "a depth of the second cavity is equal to or greater than about 0.1 millimeter and equal to or less than about 10 millimeter", as recited in claim 9.

Further, Lambert et al. does not provide any teaching of: "the depth of the second cavity is about 1 millimeter", as recited in claim 10 as amended.

Accordingly, because Lambert et al. does not teach each and every limitation of

independent claim 1, and dependent claims 9 and 10 which depend from claim 1, applicant submits that the rejection of claims 9 and 10 based on Lambert et al. under 35 U.S.C. §103(a) is improper.

C. THE EXAMINER'S REJECTION OF CLAIM 5 UNDER 35 U.S.C. §103(a) IS IMPROPER

The Examiner's rejection of claim 5 under 35 U.S.C. 103(a) is improper because the combination of Lambert et al. and Watanabe et al. does not teach each and every limitation of the claim 5.

Claim 5 depends from claim 1 and therefore incorporates all of the limitations of claim 1.

Referring to Watanabe et al, the reference is directed to an infrared sensor. However, Lambert et al. and Watanabe et al., alone or in combination, do not provide any teaching of: "the metal base header having a second cavity therein communicating with the first cavity, the second cavity having a second predetermined maximum width at least as large as the first predetermined maximum width.", as recited in claim 1.

Accordingly, because the combination of Lambert et al. and Watanabe et al. does not teach each and every limitation of independent claim 1, and dependent claim 5 which depends from claim 1, applicant submits that the rejection of claim 5 based on these references under 35 U.S.C. §103(a) is improper.

D. THE EXAMINER'S REJECTION OF CLAIMS 1, 5, AND 9-11 UNDER 35 U.S.C. §103(a) IS IMPROPER

The Examiner's rejection of claims 1, 5 and 9-11 under 35 U.S.C. 103(a) is improper because no proper motivation has been provided for the combination of Endo et al. and

Watanabe et al. and the references do not teach each and every limitation of the claims.

Claims 1, 5 and 11 stand or fall together as a group. Claim 9 stands or falls by itself. Claim 10 stands for falls by itself.

Referring to Figure 3 of Watanabe et al., this Watanabe et al. infrared sensor includes a thermopile element 1 and a thermistor 2 integrally formed together. See also Watanabe et al., column 4, lines 18-21. If this Watanabe et al. sensor including the thermopile element 1 integrally formed with the thermistor 2, was inserted on the base 2 of the Endo et al. sensor shown in Figure 3B, as suggested by the Examiner, the pit 12 of the Watanabe et al. sensor would not communicate with the cavity 6A of the Endo et al. sensor. Further, the thermistor 2 of the Watanabe et al. sensor would prevent the infrared reflecting film 7A of the Endo et al. sensor from radiating infrared energy toward the infrared sensing element which would destroy the intended functionality of Endo et al. sensor. See Endo et al., column 6, lines 1-10. Accordingly, because this proposed combination would destroy the functionality of the primary reference (i.e., Endo et al.), applicant submits that no proper motivation has been provided for the proposed combination.

Accordingly, because the Examiner did not establish a prima facie case of obviousness for the rejection of claims 1, 5 and 9-11, applicant submits that the rejection of claims 1, 5 and 9-11 based on Endo et al. and Watanabe et al. under 35 U.S.C. §103(a) is improper.

Referring to claim 9, applicant notes that neither Endo et al. nor Watanabe et al. provide any teaching of: "wherein a depth of the second cavity is equal to or greater than about 0.1 millimeter and equal to or less than about 10 millimeter"

Accordingly, because the combination of Endo et al. and Watanabe et al. does not teach each and every limitation of claim 9, applicant submits that the rejection of claim 9 based on these references under 35 U.S.C. §103(a) is improper.

Referring to claim 10, applicant notes that neither Endo et al. nor Watanabe et al. provide any teaching of: "wherein the depth of the second cavity is about 1 millimeter."

Accordingly, because the combination of Endo et al. and Watanabe et al. does not teach each and every limitation of claim 10, applicant submits that the rejection of claim 10 based on these references under 35 U.S.C. §103(a) is improper.

E. CONCLUSION

In view of the foregoing arguments, applicant respectfully submits that the recited claims are novel and unobvious. Further, a reversal of the rejections of record, or such recommendation or relief as equity may require, is respectfully requested.

Respectfully Submitted,

By /JohnFBuckert/
John F. Buckert
Registration No. 44,572

Date: November 10, 2008

CLAIMS APPENDIX

1. A thermal detection device having a hot and a cold region, the device comprising:

a first thermocouple disposed across the hot and cold regions, the first thermocouple having a first terminal and a defined polarity;

a second thermocouple disposed across the hot and cold regions, the second thermocouple having a second terminal and a polarity opposite to the polarity of the first thermocouple;

a thermal absorber disposed at the hot region and in thermal communication with the first and second thermocouples;

a diaphragm member supporting the first thermocouple and the second thermocouple thereon;

a support rim supporting the diaphragm member thereon, the support rim having a first cavity, the first cavity having a first predetermined maximum width; and

a metal base header supporting the support rim, the metal base header having a second cavity therein communicating with the first cavity, the second cavity having a second predetermined maximum width at least as large as the first predetermined maximum width, wherein the first and second thermocouples generate a voltage across the first and second terminals that is indicative of an amount of thermal radiation absorbed at the thermal absorber.

5. The device of Claim 1, wherein the thermal absorber is a black body.

9. The device of Claim 1, wherein a depth of the second cavity is equal to or greater than about 0.1 millimeter and equal to or less than about 10 millimeter.

10. The device of Claim 9, wherein the depth of the second cavity is about 1 millimeter.

11. The device of Claim 1, further comprising:

a cap disposed to house the first and second thermocouples between the cap and the metal base header, the cap and metal base header defining an internal volume, the cap having a window proximate the hot region for transmitting thermal radiation therethrough.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

Applicant is not aware of any related appeals or interferences.